1105-14-191 **Nicolas Addington*** (adding@math.duke.edu). *On various rationality conjectures for cubic fourfolds.*

I'll try to clarify the interrelations between several conjectural criteria for rationality of cubic fourfolds: Hassett's (1996), Kuznetsov's (2008), and Galkin and Shinder's (last May). In particular I'll explain that a cubic has an associated K3 surface in the sense of Hassett if and only if its variety of lines is birational to a moduli space of sheaves on a K3 surface, which is slightly weaker than Galkin and Shinder's condition that it be birational to $\mathrm{Hilb}^2(\mathrm{K3})$. Time permitting I may say a bit about Lehn et al.'s hyperkähler 8-fold. (Received September 19, 2014)